UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/475,093	12/30/1999	Matthew D. Halfant	GENSP034	3180

22434	7590	11/21/2003

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EXAMINER
HUYNH, CONG LAC T

ART UNIT	PAPER NUMBER
2178	

DATE MAILED: 11/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this c mmunication appears on the cover sheet with the c rresp ndence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>28 August 2003</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>21-41</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>21-41</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>12</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s). _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

1.   This action is responsive to communications: RCE filed on 8/28/03 to the

application filed on 12/30/99.

2.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/28/03

has been entered.

3.   Claims 1-20 are canceled.

4.   Claims 21-41 are added.

5.   Claims 21-41 are pending in the case. Claims 21, 28, 35 are independent

claims.

6.   The rejections of claims 1-20 under 35 U.S.C. 103 (a) as being unpatentable

over Lam in view of Callway have been withdrawn in view of the cancellation of these

claims.

Claim Objections

7.   Claim 22 is objected to because of the following informalities: the claim includes

the typographical errors in the limitation "calculating an enhanced block of interest for

the particular digital video frame _using the using the movement information_."

Appropriate correction is required.

8.   Claim 26 is objected to because of the following informalities: there is a repetition

of the "zoom operation" in the group for selecting the manipulating. Canceling one of

the zoom operations is required.

Claim Rejections - 35 USC § 112

9.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of
> making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the
> art to which it pertains, or with which it is most nearly connected, to make and use the same and shall
> set forth the best mode contemplated by the inventor of carrying out his invention.

10.   Claims 21-41 are rejected under 35 U.S.C. 112, first paragraph, as failing to

comply with the enablement requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to enable one skilled in the art to

which it pertains, or with which it is most nearly connected, to make and/or use the

invention.

Regarding claims 21-23, the claims include the steps which are enable to perform as

claimed. The invention, as disclosed in specification, is directed to decompressing the

compressed video streams stored in a DVD. The video data streams include digital

video frames where the video frames include the subunits of blocks (specification, page

8, line 26 to page 9, line 25). The decompressing, therefore, should include substeps

performing on video streams, then on the video frames and on the video blocks

included in the video frames.

Claims 21-23, on the other hand, are directed in an opposite way. Specifically,

independent claim 21 recites the steps dealing with the digital video frames first.

Dependent claim 22 recites steps dealing with the blocks included in the digital video

frames. Finally, dependent claim 23 then recites steps dealing with reading

compressed digital video streams and decompressing the compressed digital video

streams.

Dependent claims 24-27 are rejected for fully incorporating the deficiencies of their base

claim.

Claims 28-41 are for a program product and an apparatus of method claims 21-27, and

therefore are rejected as under the same issue as applied to claims 21-27.

11.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

12.   Claims 21-41 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

Regarding claims 21-23, the order of the steps as recited in claims 21-23 <u>are not</u>

<u>consistent</u> with the disclosure in figure 4 and the specification of the invention (page 8,

line 26 to page 9, line 25). For example, the steps of reading the compressed digital

video streams and decompressing the digital video streams to create digital video

frames in claim 23 should have been occurred before retrieving movement information

for the processed video frames or calculating the enhanced block for the present frame

using associated blocks from multiple frames in claim 22, and said reading and

decompressing should have been occurred before selecting a frame in the video

streams in claim 21.

Dependent claims 24-27 are rejected for fully incorporating the deficiencies of their base

claim.

Claims 28-41 are for a program product and an apparatus of method claims 21-27, and

therefore are rejected as under the same issue as applied to claims 21-27.

Claim Rejections - 35 USC § 103

13.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

14.   Claims 21-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over

McDade et al. (US Pat No. 6,490,324 B1, 12/3/02, filed 12/8/98).

Regarding independent claim 21, McDade discloses:

- selecting a particular one of the digital video frames for enhancement (col 11, line

    60 to col 12, line 19: selecting a desired sequence form the video and audio

    stream)

- selecting other of the digital video frames associated with the particular digital

video frame (col 13, lines 3-25: the fact that the frames are encoded based on

the past and future frames implies an association between a particular frame and

other video frames, actually its past and future frames)

McDade does not explicitly disclose enhancing the selected digital video frame based

upon information included in the other digital video frames and the particular digital

video frame.

Instead, McDade discloses decompressing the encoded frames based on the

information of the frames (col 13, lines 5-40).

It would have been obvious to one of ordinary skill in the art at the time of the invention

was made to have modified McDade to include enhancing the selected digital video

frame based upon information included in the other digital video frames and the

particular digital video frame since decompressing the encoded video frames based on

the information of the frames, actually a frame and its past and future frame, is one way

to enhance a video frame and other frames associated with said frame.

Regarding claim 22, which is dependent on claim 21, McDade discloses;

- obtaining movement information for the selected digital video frame and the other

digital video frames (col 3, lines 32-55: the set of motion compensation

instructions is included in the encoded video frames used for decompressing)

- calculating an enhanced block of interest for the particular digital video frame

using the movement information (col 4, lines 4-15; col 14, lines 5-19)

McDade does not disclose explicitly retrieving a first block of interest from the selected

digital video frames and identifying associated blocks of interest included in the other

video frames.

Instead McDade discloses that the implementation of decoding the encoded video

frames allows the motion compensation pipeline to be specified and implemented either

separately or together with *the block decode section* with minimal coordination (col 3,

line 56 to col 4, line 15) and the association between a frame and other video frames,

actually its past and future frames (col 13, lines 3-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention

was made to have modified McDade to include retrieving the first block of interest as

well as identifying associated blocks of interest from the other video frames since the

block decode section suggests selecting a block from a video frame for decoding.

Further, since there is an association between a frame and its past and future frames, it

is suggested that the block retrieved for decoding in the frame would have an

association with the blocks in the associated past and future frames.

Regarding claim 23, which is dependent on claim 22, McDade discloses:

- reading a compressed video stream having the movement information embedded

   therein (col 1, lines 26-39 and col 2, lines 6-43: compressed video streams are

   stored in the DVD having video data for movement)

- using the embedded movement information to decompress the compressed

   video stream into a series of digital video frames (col 2, lines 6-43, 45-61:

decompress the compressed video streams, "the motion compensation

instruction encoder utilizing at least the prediction data stream to produce a set of

motion compensation instructions")

Regarding claim 24, which is dependent on claim 22, McDade does not explicitly

disclose:

- the enhancement of the digital video frame is complete

- selecting another of the stream of digital video frames for enhancment

- continuing the selecting until all of the selected digital video frames, or portions

  thereof, have been enhanced

Instead, McDade discloses that *all the encoded video data streams in the video input*

buffer are decoded (figure 11, #326, #44, #608).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the

invention was made to have modified McDade to include the above steps since the fact

that decoding of the encoded video streams in the buffer is complete implies that the

decompression, which is considered as an enhancement of the encoded video frame, is

performed for each of the video data streams and continues to perform for the next one

until all of the video frames in the buffer is decoded.

Regarding claim 25, which is dependent on claim 24, McDade discloses manipulating

selected ones of the enhanced digital video frames (col 11, lines 25-39; col 9, lines 26-

57).

Regarding claim 26, which is dependent on claim 22, McDade discloses that

manipulating is selected from a group comprising: a zoom operation, a contrast

enhancement operation, a luminance control operation, a color adjustment operation, a

gamma correction operation, an image sharpening operation, and a color saturation

operation (col 11, lines 25-39: the video renderer provides the intelligence on *how to*

manipulate the combined decoded video data wherein the color adjustment operation –

"what color space conversion to use"—is one from the group of manipulating functions).

Regarding claim 27, which is dependent on claim 26, McDade discloses that the

method is executed by a processor unit included in a digital video disc (DVD) player

(figure 2; col 9, line 57 to col 10, line 35).

Claims 28-41 are for a computer program product and an apparatus of method claims

21-27, and are rejected under the same rationale.

Conclusion

15.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Choi (US Pat No. 6,266,374 B1, 7/24/01, filed 12/9/97).

Wu et al. (US Pat No. 6,418,166 B1, 7/9/02, filed 11/30/98).

Bakhmutsky (US Pat No. 6,480,629 B1, 11/12/02, filed 4/6/99).

Altunbasak et al., A fast method of reconstructing high-resolution panoramic stills from

MPEG-compressed video, IEEE 1998, pages 99-104.

Kobla et al., Extraction of features for indexing MPEG-compressed video, IEEE 1997,

pages 337-342.

Shi et al., A fast MPEG video encryption algorithm, ACM 1998, pages 81-88.

Chiueh et al., Zodiac : A History-Based Interactive Video Authoring System, ACM 1998,

pages 435-444.

16.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Cong-Lac Huynh whose telephone number is 703-305-

0432. The examiner can normally be reached on Mon-Fri (8:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Heather Herndon can be reached on 703-308-5186. The fax phone number

for the organization where this application or proceeding is assigned is 703-746-7239.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is 703-305-

9000.

clh
11/13/03

JOSEPH H. FEILD
PRIMARY EXAMINER